

## **Title V**

### **Model General Permit Template**

#### **SERIES 1 WELL VENTS**

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#### **Template # SJV-WV-1-1**

steam-enhanced crude oil production well vents and associated vapor control system	any
subject to the requirements of District Rule 4401	

This template is designed to streamline the Title V permitting process for steam enhanced oil production well vents meeting the above qualifications. Applicants for Title V permits choosing to use this template will only have to complete the enclosed template qualification form and submit it with their Title V application.

**San Joaquin Valley Unified Air Pollution Control District**

**Final  
Title V Model General Permit Template  
Series 1 Well Vents**

**Template No: SJV-WV-1-1**

**PREPARED BY:** Signed  
**Carlos V. Garcia**  
**Senior Air Quality Engineer**

**REVIEWED BY:** Signed  
**Rick McVaigh**  
**Permit Services Manager**

**APPROVED BY:** Signed  
**Seyed Sadredin**  
**Director of Permit Services**

**FINAL DECISION DATE:** 5/12/2000

# **SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT**

## **TITLE V GENERAL PERMIT TEMPLATE SJV-WV-1-1**

### **ENGINEERING EVALUATION**

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## I. Purpose

The purpose of the proposed template is to streamline the Title V permitting process by identifying the federally applicable requirements for certain steam-enhanced crude oil production well vents and to establish permit conditions which will ensure compliance with such requirements. These conditions will be incorporated into the Title V permit of any facility choosing to make use of the template.

## II. Template Applicability

This template applies to:

steam-enhanced crude oil production well vents that are not closed and any associated vapor collection and control system, which are

subject to the requirements of District Rule 4401

The applicability of this template is determined by completion of the Template Qualification Form (TQF) attached as Appendix C. The completed and signed TQF for each qualifying unit must be submitted with the Title V application.

## III. Applicable Requirements

Units may be subject to “federally enforceable “ requirements as well as requirements that are enforceable by the “District-only.” Federally enforceable requirements will be enforceable by the EPA, the District, and the public through Title V permit conditions identified as federally enforceable. District-only requirements represent local or state regulations for which the EPA has no direct enforcement authority. The final Title V permits issued by the District will contain both federally enforceable and District-only requirements.

District-only requirements are not addressed in this template except for those used in streamlining of multiple requirements (see discussion in section IV). District-only requirements used in streamlining of multiple requirements will become federally enforceable. Table 1, Applicable Requirements, does not necessarily include all federally enforceable requirements that apply to certain steam-enhanced crude oil production well vents qualifying to use this template, and it is the source’s responsibility to determine any and all applicable requirements to which the source is subject. Generally, requirements not addressed by this template are those that require a source-specific analysis, or are covered by other templates.

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**Table 1 Applicable Requirements**

Rule Category	Rule/Regulation	Citation	Description
A	County Rule	108 <sup>1</sup>	Source Sampling
A	County Rule	108.1 <sup>2</sup>	Source Sampling
A	County Rule	110 <sup>3</sup>	Source Sampling
A	SJVUAPCD Reg. II	2520, 9.4.2, 9.5.2, 13.2	Monitoring and Recordkeeping Requirements, and Permit Shields
A	SJVUAPCD Reg. IV	4401, excluding sections 5.1 and 5.2 for certain control systems <sup>4</sup>	Steam-Enhanced Crude Oil Production Well Vents
B	SJVUAPCD Reg. II	2201	New Source Review Rule
B	SJVUAPCD Reg. II	2520 <sup>5</sup>	Federally Mandated Operating Permits
B	SJVUAPCD Reg. IV	4101 <sup>6</sup>	Visible Emissions
B	SJVUAPCD Reg. IV	4102 <sup>5</sup>	Nuisance
B	SJVUAPCD Reg. IV	4401, sections 5.1 and 5.2 for certain control systems <sup>4</sup>	Steam-Enhanced Crude Oil Production Well Vents
C	SJVUAPCD Reg. IV	4407	In-Situ Combustion Well Vents
D	SJVUAPCD Reg. I	1081	Source Sampling

Category “A” rules contain requirements that are directly applicable to the qualifying units; compliance with these applicable requirements will be demonstrated in this engineering evaluation and assured by the template permit conditions. In section IV, Compliance, the federally-enforceable requirements from category “A” rules are listed with a discussion of how compliance with these requirements is achieved.

Category “B” rules contain federally enforceable requirements (aside from those listed as Category A) that were not addressed in this template. These may not be all of the federally enforceable requirements for this unit. Requirements from these rules must be addressed, if applicable, by the applicant outside of this template within the Title V application Compliance Plan form (TVFORM-004). Category “B” listing is included in this table as an informational item to assist applicants in this effort.

Category “C” rules contain requirements which have been determined not to be applicable to qualifying units. A permit shield is proposed for the category “C” rules.

<sup>1</sup> Kings

<sup>2</sup> Fresno, Merced, San Joaquin, Tulare, Kern, and Stanislaus

<sup>3</sup> Madera

<sup>4</sup> Compliance for Sections 5.1 and 5.2 of District Rule 4401 are not addressed in this template for certain VOC control systems for which the APCO has waived the requirements of section 6.2.1. These control systems may consist of fuel burning equipment, an internal combustion engine, smokeless flares, or systems which do not have a VOC destruction device (specifically, if VOC collected is reinjected underground).

<sup>5</sup> Other than category A requirements

<sup>6</sup> Portions of this rule are addressed in the facility-wide template SJV-UM-0-1

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An explanation of the determination of non-applicability of category “C” rules is included in section V, Permit Shield.

Category “D” rules are District rules which are used to show compliance with federally enforceable requirements, and therefore some requirements from these rules will become federally enforceable through the use of this template.

There are no general conditions in this template addressing compliance with the District Rule 4401 requirement for 99% control efficiency of the vapor collection and control system for systems for which the APCO has waived testing requirements, pursuant to section 6.2.1. These control systems may consist of a smokeless flare, an internal combustion engine, fuel burning equipment, or a system not having a VOC control device (i.e. reinjection of VOC underground). Control efficiency must be demonstrated once for the collection system with source specific data, using mass balance based on recognized emission factors for components and number of components. Consequently, this collection efficiency must then be used in demonstrating compliance with the 99% control efficiency requirement for the collection and control system, outside of this template in the source’s Title V application.

## IV. Compliance

This section contains a discussion of how compliance is assured with each requirement addressed in this template.

### **District Rule 1081 and County Rules 108, 108.1, and 110**

District Rule 1081 has been submitted to the EPA to replace each of the county rules in the SIP: Rule 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern and Stanislaus), and 110 (Madera). Appendix B lists all of the applicable requirements of District Rule 1081 and shows which are included in the rule from each county. This table shows that District Rule 1081 is more stringent than each of these county rules.

Sections 3.0, 4.0, 5.0, 6.0, and 7.0 of Rule 1081 set forth requirements for sampling facilities, collection of samples, test methods, test procedures, and administrative requirements, respectively. These requirements are covered by template permit condition #3.

### **District Rule 2520, 9.4.2 and 9.5.2**

Section 9.4.2 requires that periodic monitoring be performed if none is associated a federally enforceable requirement to assure compliance. District Rule 4401 does not specify a monitoring frequency for leak detection. Therefore, condition #16 requires annual leak inspections to be conducted by the source to assure compliance with leak limits of the rule.

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Section 9.5.2 requires all records be maintained for at least five years. Template permit condition #5 requires that all records be maintained for at least five years.

## **District Rule 4401**

Section 5.0 sets forth requirements for limiting the emissions of Volatile Organic Compounds (VOCs). This section lists emission control requirements as well as work practice standards. These requirements are covered by template permit conditions #6–12.

Section 6.0 sets forth requirements for testing and recordkeeping. This section also allows the APCO to waive certain control systems from the requirements of section 6.2.1. Section 6.2.1 requires annual source testing to show control efficiency compliance. This waiver applies to control systems consisting of fuel burning equipment, an internal combustion engine, smokeless flares, or systems which do not have a VOC destruction device (specifically, if VOC collected is reinjected underground). The requirements of this section are covered by template permit conditions #4 and #13–16.

The basis of the waiver for smokeless open flares is that technology does not currently exist for source testing these controls. However, typically these devices have 99% or greater control efficiency.

The basis of the waiver for control systems which reinject VOC underground is that these systems are assumed to have 100% control. This VOC disposal method does not use an emission destruction device and there is no need to conduct a source test.

The basis of the waiver for control systems consisting of fuel burning equipment (primarily steam generators) is that these units have greater than 99% control efficiency for VOC, as demonstrated by the following calculations:

STEAM GENERATORS,:

$$\frac{5.5 \frac{\text{lb} \cdot \text{VOC}}{10^6 \cdot \text{cf}}}{\frac{1 \cdot \text{lb}}{23.8 \cdot \text{cf}}} = 0.00013 \frac{\text{lb} \cdot \text{VOC}}{\text{lb} \cdot \text{gas}} = 0.013 \%$$

where:

$$5.5 \frac{\text{lb} \cdot \text{VOC}}{10^6 \cdot \text{cf}} = \text{VOC emission factor from natural gas fired boilers (AP-42, Table 1.4-2)}$$

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$$\frac{1 \cdot lb}{23.8cf} = \text{density of natural gas, (AP-42, Appendix A)}$$

The preceding calculations demonstrate that the control efficiency for VOC emissions is greater than 99% by almost two orders of magnitude for steam generators. Therefore, source tests for VOC control effectiveness are clearly unnecessary.

Control systems which have been waived from the source test requirements of District Rule 6.2.1 are still required to demonstrate compliance with sections 5.1 and 5.2 of the rule for 99% control of collection and control efficiency. As discussed in Section III, Applicable Requirements, there are no general conditions in this template addressing compliance with these sections for such equipment. Consequently, a one-time demonstration of collection efficiency using a mass balance and source specific data will be necessary for such sources. In the Title V application outside of this template, the source must also demonstrate compliance with the requirement that collection and control system have 99% control efficiency.

## V. Permit Shield

A permit shield legally protects a facility from enforcement of the shielded regulations when a source is in compliance with the terms and conditions of the Title V permit. Compliance with the terms and conditions of the Title V permit is considered compliance with all applicable requirements upon which those conditions are based, including those that have been subsumed.

### **District Rule 4401; and County Rules 108, 108.1, and 110**

By using this template, the applicant is requesting a permit shield from requirements of District Rule 4401, excluding sections 5.1 and 5.2, for control systems which have been waived from complying with the requirement of section 6.2.1 and of County Rules 108, 108.1, and 110. See template permit conditions #17 and #18.

### **District Rule 4407**

A permit shield will also be granted for District Rule 4407 because units qualifying to use this template are not in situ combustion well vents. Condition #1 insures units using this template will not operate in a manner which would trigger District Rule 4407 applicability. A permit shield is granted from this requirement in template permit condition #19.

## VI. Permit Conditions

The following conditions will be incorporated into the Title V permit of any facility choosing to make use of template SJV-WV-1-0:



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1. The crude oil production from wells associated with this permit unit shall not lie within 1000 feet of an air injection well used for in-situ combustion. [District Rule 4407, 2.0, 3.4, and 3.5]
2. During the time any steam-enhanced crude oil production well is undergoing service or repair while the well is not producing, it shall be exempt from the emission control requirements of District Rule 4401, 5.0 (as amended January 15, 1998). [District Rule 4401, 4.1]
3. All required source testing shall conform to the compliance testing procedures described in District Rule 1081(as amended December 16, 1993). [District Rule 1081 and County Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern, and Stanislaus), and 110 (Madera)]
4. The operator shall maintain monitoring records of the date and well identification where steam injection or well stimulation occurs. [District Rule 4401, 6.1.1]
5. The operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.5.2]
6. The uncontrolled VOC emissions from any well vent shall be reduced by at least 99 percent by weight or, if several steam-enhanced crude oil production well vents are connected to a vapor collection and control system, total uncontrolled VOC emissions shall be reduced by at least 99 percent. This requirement does not apply to cyclic wells located on contiguous and adjacent oil production properties with less than 10 cyclic wells owned by or under the control of a company. [District Rule 4401, 5.1 and 5.2]
7. For cyclic wells located on properties with less than 10 cyclic wells and owned by a company, the uncontrolled VOC emissions from any well vent or system of well vents connected to a single vapor collection and control device shall be reduced by at least 50 percent. Properties shall include contiguous and adjacent oil production properties owned by or under control of the company. [District Rule 4401, 5.4]
8. Total number of leaks from the vapor collection and control system, including condensate handling, shall not exceed the number as allowed by Rule 4401 (as amended January 15, 1998) at any one time. [District Rule 4401, 5.3]
9. Units consisting of more than 500 wells shall not exceed one leak detected for each 20 wells tested with a minimum of 50 wells tested. [District Rule 4401, 5.3]
10. Operator shall affix a readily visible tag bearing the date on which a leak is detected. The tag shall remain in place until the leaking component is repaired. [District Rule 4401, 5.3.1]

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11. Operator shall repair each leak within 15 calendar days of detection. The APCO may grant a 10 calendar day extension if the operator demonstrates that the necessary and sufficient actions have and are being taken to correct the leak. [District Rule 4401, 5.3.1]
12. Operator shall maintain all components of a well vent vapor collection and control system in good repair. Components of the well vent vapor collection and control system shall include all piping, valves, fittings, pumps, compressors, tanks, etc. used to collect, control, store, or dispose of VOC condensate or non-condensable VOCs and which is prior to any blending of VOC condensate with crude oil or blending of non-condensable VOCs with gases to be used as a fuel. [District Rule 4401, 5.3 and 5.3.2]
13. Annual control efficiency compliance tests shall be performed on all vapor collection and control systems used to control emissions from steam-enhanced crude oil production wells. Testing shall be performed by source testers certified by the California Air Resources Board (CARB) during June, July, August or September of each year if the system's control efficiency is dependent upon ambient air temperature. The APCO may waive the annual testing requirements of this condition if the vapor control system does not exhaust to atmosphere or if all uncondensed VOC emissions collected by a vapor collection and control system are incinerated in fuel burning equipment, an internal combustion engine or in a smokeless open flare, and the source's Operating Permit contains adequate periodic monitoring to ensure the source meets 99% control efficiency. [District Rule 4401, 5.1, 5.2 and 6.2.1]
14. The control efficiency of the vapor collection and control system used to control VOC emissions from steam enhanced crude oil production well shall be determined by mass balance based on most stringent of a source test, USEPA approved emission factors, or Air Pollution (AP)-42 emission factors for components and number of components; and the efficiency of destruction devices determined by USEPA Method 25, 25a, or 25b as applicable. [District Rule 4401, 6.3.1]
15. VOC content shall be determined using the latest revision of ASTM Method E168, E169, or E260 as applicable. Halogenated exempt compounds shall be determined by CARB Method 432. [District Rule 4401, 6.3.2]
16. The source shall perform leak inspections at least annually, using a portable hydrocarbon detection instrument in accordance with USEPA Method 21. [District Rules 2520, 9.4.2 and 4401, 6.3.3]
17. Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following requirements: County Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern, and Stanislaus), and 110 (Madera). A permit shield is granted from these requirements. [District Rule 2520, 13.2]
18. Compliance with permit conditions in the Title V permit shall be deemed in compliance with SJVUAPCD Rule 4401 (Amended January 15, 1998), excluding

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sections 5.1 and 5.2 for control systems which have been waived from complying with the requirement of section 6.2.1. A permit shield is granted from these requirements. [District Rule 2520, 13.2]

19. The requirements of SJVUAPCD Rule 4407 (Adopted May 19, 1994) do not apply to this permit unit. A permit shield is granted from this requirement. [District Rule 2520, 13.2]

APPENDIX A  
DEFINITIONS  
FOR  
TEMPLATE # SJV-WV-1-1

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*In-situ Combustion:* a thermal crude oil recovery process in which air is injected into an oil reservoir and in-place petroleum oxidizes at an accelerated rate. The heat of combustion and combustion products enhance oil production by decreasing viscosity and pressurizing the reservoir. [District Rule 4407, 3.4]

*Stationary Source:* any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. Building, structure, facility, or installation includes all pollutant emitting activities including emissions units which:

Are under the same or common ownership or operation, or which are owned or operated by entities which are under common control; and

Belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and

Are located on one (1) or more contiguous or adjacent properties; or

Are located on one or more properties wholly within either the Western Kern County Oil Fields or the Central Kern County Oil Fields or Fresno County Oil Fields and are used for the production of light oil, heavy oil or gas. Notwithstanding the provisions of this definition, light oil production, heavy oil production, and gas production shall constitute separate stationary sources. [District Rule 2201, 3.29]

## APPENDIX B

### COUNTY RULE / DISTRICT RULE 1081 COMPARISON FOR TEMPLATE # SJV-WV-1-1

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### Rule 1081 (Source Sampling)

REQUIREMENTS	1081 SJVUAPCD	108 KINGS	110 MADERA	108.1 FRESNO	108.1 MERCED	108.1 S.J.	108.1 TULARE	108.1 KERN	108.1 STANI SLAUS
Upon request of the APCO, the source shall provide info. and records to enable the APCO to determine when a representative sample can be taken.	X		X	X	X	X	X	X	X
The facility shall collect, have collected or allow the APCO to collect, a source sample	X	X	X	X	X	X	X	X	X
The source shall have District personnel present at a source test	X								
The applicable test method, if not specified in the rule, shall be conducted in accordance with 40 CFR § 60, Appendix A	X								
Test procedures: 1) arithmetic mean of three runs 2) a scheduled source test may not be discontinued solely due to the failure to meet the applicable standard(s), and 3) arithmetic mean of two runs is acceptable if circumstances beyond owner or operator control occurs.	X								

## APPENDIX C

### TEMPLATE QUALIFICATION FORM FOR TEMPLATE # SJV-WV-1-1



# Template SJV-WV-1-1

## **Title V General Permit Template Qualification Form**

District permit # \_\_\_\_\_

Please answer the questions in the table below. Well vents and any associated vapor collection and control system (unit) which meets the criteria of this table is qualified to use this template as part of a Title V application. To use this template, remove this sheet and attach to application.

Yes	No	Description of Qualifying Units
		Does this unit consist solely of crude oil production well vents that are not closed where production has been increased by steam injection and any associated vapor collection and control system? If "yes," continue to next question; otherwise STOP - you cannot use this template.
		Do the crude oil production wells associated with this unit have production enhanced by in-situ combustion (see Appendix A)? [District Rule 4407, 3.4 and 3.5] If "no," continue to next question; otherwise STOP - you cannot use this template.
		Is this well one of the first 100 cyclic wells of a small producer? [District Rule 4401, 3.10 and 4.2] If "no," continue to next question; otherwise STOP - you cannot use this template.
		Is this well one of the first 40 cyclic wells owned by a company undergoing pilot testing, in a production zone on that property that has not been injected in the last two years, the well is located more than 1000 feet from an existing well vent vapor collection and control system operated by the company, and the operation is under District Permit. [District Rule 4401, 4.3] If "no," continue to next question; otherwise STOP - you cannot use this template.
		Is this well one of the first 40 cyclic wells owned by a company undergoing well stimulation, the well is located more than 1000 feet from an existing well vent vapor collection and control system operated by the company, and the operation is under District Permit. [District Rule 4401, 4.4] If "no," continue to next question; otherwise STOP - you cannot use this template.
		Is this well one of twenty cyclic wells owned by a company in each stationary source (see Appendix A) which are located more than 1000 feet from an existing well vent vapor control system operated by the company, and are under District permit? [District Rule 4401, 4.5] If "no," continue to next question; otherwise STOP - you cannot use this template.
		Is this well one of the first 10 wells of a small producer that are responding to steam injected from an operator other than themselves and where no contractual agreement for injected steam exists? [District Rule 4401, 3.10 and 4.6] If "yes," STOP - you cannot use this template; otherwise you qualify to use this template.

Based on information and belief formed after reasonable inquiry: 1) the information on this form is true, accurate, and complete, and 2) the facility is in compliance with this template's permit conditions:

\_\_\_\_\_  
Signature of Responsible Official

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Responsible Official (Please print)